

Application No. 10/697,835
Amendment dated July 27, 2006
Reply to Restriction Requirement of June 7, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An orthopedic implant for contact with bone, including adjacent bones and adjacent bone portions, of a human skeleton, said implant comprising:
 - a leading end for introduction of said orthopedic implant into the bone, an opposite trailing end, spaced apart sides therebetween, and a mid-longitudinal axis passing through said leading and trailing ends;
 - an exterior surface between said leading and trailing ends and said spaced apart sides, said exterior surface adapted for placement in engagement with the bone; and
 - a plurality of surface projections formed on said exterior surface of said implant, at least a first and a second of said surface projections each having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than the length of said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, the slope of said forward facets of said at least said first and said second of said surface projections being the same, at least a portion of said rearward facet of said first surface projection overlying a portion of said forward facet of said second surface projection, said first and second surface projections each having opposed side facets directed generally toward said spaced apart sides of said implant, respectively, said side facets being located between said forward facet and said rearward facet of each of said first and second surface projections.

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2. (original) The orthopedic implant of claim 1, wherein said rearward facet is at an angle to said exterior surface of said implant.
3. (original) The orthopedic implant of claim 2, wherein the angle is greater than 90 degrees.
4. (original) The orthopedic implant of claim 1, wherein said surface projections are oriented relative to one another to form an array.
5. (original) The orthopedic implant of claim 1, wherein said surface projections are geometrically disposed relative to one another.
6. (original) The orthopedic implant of claim 1, wherein said exterior surface of said implant is at least in part arcuate.
7. (original) The orthopedic implant of claim 1, wherein at least one of said leading end, trailing end, and sides are curved.
8. (original) The orthopedic implant of claim 1, wherein said sides are curved.
9. (original) The orthopedic implant of claim 1, wherein each of said leading end, trailing end, and sides are curved.
10. (original) The orthopedic implant of claim 9, wherein said leading end, trailing end, and sides form a circle.
11. (original) The orthopedic implant of claim 1, wherein said exterior surface of said implant is at least in part planar.
12. (original) The orthopedic implant of claim 1, wherein said implant is tapered along at least a portion of the length of said implant.
13. (original) The orthopedic implant of claim 1, wherein said implant comprises a material other than bone.
14. (original) The orthopedic implant of claim 1, wherein said implant comprises bone.
15. (original) The orthopedic implant of claim 14, wherein said bone includes cortical bone.
16. (original) The orthopedic implant of claim 1, wherein said implant comprises bone growth promoting material.

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17. (original) The orthopedic implant of claim 16, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
18. (original) The orthopedic implant of claim 1, wherein said implant is treated with a bone growth promoting substance.
19. (original) The orthopedic implant of claim 1, wherein said implant is a source of osteogenesis.
20. (original) The orthopedic implant of claim 1, wherein said implant is at least in part bioabsorbable.
21. (original) The orthopedic implant of claim 1, wherein said implant comprises metal.
22. (original) The orthopedic implant of claim 21, wherein said metal is ASTM material suitable for use as an orthopedic implant.
23. (original) The orthopedic implant of claim 21, wherein said metal includes titanium.
24. (original) The orthopedic implant of claim 1, wherein said implant comprises a plastic material.
25. (original) The orthopedic implant of claim 1, wherein said implant comprises a ceramic material.
26. (original) The orthopedic implant of claim 1, wherein said implant is formed of a porous material.
27. (original) The orthopedic implant of claim 1, wherein said implant is formed of a material that intrinsically participates in the growth of bone from adjacent bone to adjacent bone through said implant.
28. (original) The orthopedic implant of claim 1, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent bone or bone portions.
29. (original) The orthopedic implant of claim 1, wherein said orthopedic implant is a fusion implant.

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30. (original) The orthopedic implant of claim 29, wherein said exterior surface includes at least one opening to permit bone growth from adjacent bone to adjacent bone through said implant.
31. (original) The orthopedic implant of claim 29, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.
32. (original) The orthopedic implant of claim 31, wherein said implant has a cap for closing said access opening.
33. (original) The orthopedic implant of claim 31, wherein said exterior surface includes at least one opening in communication with said internal chamber to permit bone growth from adjacent bone to adjacent bone through said implant.
34. (original) The orthopedic implant of claim 31, wherein said internal chamber is capable of containing bone growth promoting material.
35. (original) The orthopedic implant of claim 34, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
36. (original) The orthopedic implant of claim 1, further comprising at least one opening capable of retaining fusion promoting materials.
37. (original) The orthopedic implant of claim 1, further comprising at least one cut cleaving said surface projection into at least two portions.
38. (original) The orthopedic implant of claim 37, further comprising at least a second cut cleaving said surface projection into at least four portions.
39. (original) The orthopedic implant of claim 37, where said cut penetrates said surface projection at a depth substantially equal to that of the height of said surface projection.
40. (original) The orthopedic implant of claim 38, where said second cut penetrates said surface projection at a depth substantially equal to that of the height of said surface projection.
41. (original) The orthopedic implant of claim 37, wherein said cut is oriented along one of the mid-longitudinal axis of said implant, an axis perpendicular to the mid-longitudinal axis of said implant, and an axis at an angle between the

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mid-longitudinal axis and the axis perpendicular to the mid-longitudinal axis of said implant.

42. (original) The orthopedic implant of claim 1, in combination with a fusion promoting substance.
43. (original) The orthopedic implant of claim 42, wherein said fusion promoting substance includes at least one of bone, bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
44. (original) The orthopedic implant of claim 1, wherein each of said first and second surface projections have a base that is adjacent to one another.
45. (original) The orthopedic implant of claim 1, wherein each of said first and second surface projections have a base, the bases being spaced apart from one another along a direction generally parallel to the mid-longitudinal axis of said implant.
46. (original) The orthopedic implant of claim 1, wherein each of said first and second surface projections have a base, the bases being spaced apart from one another along a direction generally transverse to the mid-longitudinal axis of said implant.
47. (currently amended) The orthopedic implant of claim 1, wherein ~~said first and second surface projections each have opposed side facets directed generally toward said spaced apart sides of said implant, respectively, said side facets being located between said forward facet and said rearward facet of each of said first and second surface projections, said side facets converge~~converging toward each other in a direction away from said exterior surface of said implant.
48. (original) The orthopedic implant of claim 47, wherein said opposed side facets intersect each other.
49. (original) The orthopedic implant of claim 48, wherein said opposed side facets converge to form a peak at the top of said surface projection.
50. (original) The orthopedic implant of claim 49, wherein said peaks of at least two of said surface projections are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the mid-longitudinal axis of said implant.

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51. (original) The orthopedic implant of claim 49, wherein said peak of said first surface projection overlies at least a portion of said second surface projection.
52. (original) The orthopedic implant of claim 49, wherein said peaks of said first and second surface projections are at the same height above said exterior surface of said implant.
53. (currently amended) The orthopedic implant of claim 147, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.
54. (currently amended) The orthopedic implant of claim 147, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.
55. (original) The orthopedic implant of claim 54, wherein at least one of said grooves is parallel to the mid-longitudinal axis of said implant.
56. (original) The orthopedic implant of claim 54, wherein at least two of said grooves cross each other.
57. (original) The orthopedic implant of claim 54, wherein at least one of said grooves has a horizontal cross-sectional shape that is one of a v-shape, u-shape, and a box-like shape.
58. (currently amended) The orthopedic implant of claim 147, wherein each of said first and second surface projections have a base and said side facets have a maximum width therebetween at the base, the base being spaced apart from a base of another of said surface projections by a distance no greater than one-half the maximum width of one of said first and second surface projections.
59. (original) The orthopedic implant of claim 1, wherein said forward facets of each of said first and second surface projections face the same direction.
60. (currently amended) An orthopedic implant for contact with bone, including adjacent bones and bone portions, of a human skeleton, said implant comprising:
 - a leading end, an opposite trailing end, a mid-longitudinal axis passing through said leading and trailing ends, and right and left sides between said

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leading and trailing ends, said right and left sides being spaced apart on opposite sides of the mid-longitudinal axis and;

an exterior surface between said leading and trailing ends and said right and left sides, said exterior surface adapted for placement in engagement with the bone; and

a plurality of surface projections formed on said exterior surface of said implant, each of said surface projections having a plurality of facets, each of said facets having a perimeter defining each facet, at least a first and a second of said surface projections each having at least one right facet directed at least in part toward said right side and at least one left facet directed at least in part toward said left side, each of said right and left facets having a length and a slope, the length of said right facet being longer than the length of said left facet, the slope of said left facet being steeper than the slope of said right facet, said left facet including a perimeter~~first and second surface projections having at least one facet with the perimeter of said at least one facet~~ having at least a first and a second portion arranged to form an apex having an included angle greater than 90 degrees between said first and second portions of the perimeter.

61. (original) The orthopedic implant of claim 60, wherein said left facet is at an angle to said exterior surface of said implant.
62. (original) The orthopedic implant of claim 61, wherein the angle is greater than 90 degrees.
63. (original) The orthopedic implant of claim 60, wherein said projections are oriented relative to one another to form an array.
64. (original) The orthopedic implant of claim 60, wherein said projections are geometrically disposed relative to one another.
65. (original) The orthopedic implant of claim 60, wherein said exterior surface of said implant is at least in part arcuate.
66. (original) The orthopedic implant of claim 60, wherein said exterior surface of said implant is at least in part planar.

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67. (original) The orthopedic implant of claim 60, wherein said implant is tapered along at least a portion of the length of said implant.
68. (original) The orthopedic implant of claim 60, wherein said implant comprises bone growth promoting material.
69. (original) The orthopedic implant of claim 68, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
70. (original) The orthopedic implant of claim 60, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent bone or bone portions.
71. (original) The orthopedic implant of claim 60, wherein said orthopedic implant is a fusion implant.
72. (original) The orthopedic implant of claim 60, in combination with a fusion promoting substance.
73. (original) The orthopedic implant of claim 72, wherein said fusion promoting substance includes at least one of bone, bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
74. (original) The orthopedic implant of claim 60, wherein each of said first and second surface projections have a base, the bases being adjacent to one another.
75. (original) The orthopedic implant of claim 60, wherein each of said first and second surface projections have a base, the bases being spaced apart from one another along a direction generally parallel to the mid-longitudinal axis of said implant.
76. (original) The orthopedic implant of claim 60, wherein each of said first and second surface projections have a base, the bases being spaced apart from one another along a direction generally transverse to the mid-longitudinal axis of said implant.
77. (original) The orthopedic implant of claim 60, wherein said first and second surface projections each have a base and opposed side facets directed

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generally toward said leading and trailing ends, respectively, said side facets being located between said right facet and said left facet of each of said first and second surface projections, said side facets converging toward each other in a direction away from the base of each of said first and second surface projections.

78. (original) The orthopedic implant of claim 77, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.
79. (original) The orthopedic implant of claim 77, wherein said side facets have a maximum width therebetween at the base of said first and second surface projections, the base being spaced apart from a base of another of said surface projections by a distance no greater than one-half the maximum width of one of said first and second surface projections.
80. (original) The orthopedic implant of claim 77, wherein said opposed side facets converge to form a peak, said peaks of said first and second surface projections being at the same height above said exterior surface of said implant.
81. (original) The orthopedic implant of claim 60, wherein said right facets of each of said first and second surface projections face the same direction.
82. (currently amended) An orthopedic implant for contact with bone, including adjacent bones and bone portions, of a human skeleton, said implant comprising:
 - a leading end for introduction of said orthopedic implant into the bone, an opposite trailing end, spaced apart sides therebetween, and a mid-longitudinal axis passing through said leading and trailing ends;
 - an exterior surface between said leading and trailing ends and said spaced apart sides, said exterior surface adapted for placement in engagement with the bone; and
 - a plurality of surface projections formed on said exterior surface of said implant, at least a first and a second of said surface projections each having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end,

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each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than the length of said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said first and second surface projections each having a base and an included angle between said rearward facet and the base greater than 90 degrees relative to said exterior surface of said implant, said surface projections having opposed side facets directed generally toward said sides of said implant, said side facets being located between said forward facet and said rearward facet of said surface projections, said side facets converging toward each other in a direction away from the base of said first and second projections.

83. (original) The orthopedic implant of claim 82, wherein said exterior surface of said implant is at least in part arcuate.
84. (original) The orthopedic implant of claim 82, wherein at least one of said leading end, trailing end, and sides are curved.
85. (original) The orthopedic implant of claim 82, wherein said sides are curved.
86. (original) The orthopedic implant of claim 82, wherein each of said leading end, trailing end, and sides are curved.
87. (original) The orthopedic implant of claim 86, wherein said leading end, trailing end, and sides form a circle.
88. (original) The orthopedic implant of claim 82, wherein said exterior surface of said implant is at least in part planar.
89. (original) The orthopedic implant of claim 82, wherein said implant is tapered along at least a portion of the length of said implant.
90. (original) The orthopedic implant of claim 82, wherein said implant comprises a material other than bone.
91. (original) The orthopedic implant of claim 82, wherein said implant comprises bone.
92. (original) The orthopedic implant of claim 91, wherein said bone includes cortical bone.

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93. (original) The orthopedic implant of claim 82, wherein said implant comprises bone growth promoting material.
94. (original) The orthopedic implant of claim 93, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
95. (original) The orthopedic implant of claim 82, wherein said implant is treated with a bone growth promoting substance.
96. (original) The orthopedic implant of claim 82, wherein said implant is a source of osteogenesis.
97. (original) The orthopedic implant of claim 82, wherein said implant is at least in part bioabsorbable.
98. (original) The orthopedic implant of claim 82, wherein said implant comprises metal.
99. (original) The orthopedic implant of claim 98, wherein said metal includes titanium.
100. (original) The orthopedic implant of claim 82, wherein said implant comprises at least one of a plastic material and a ceramic material.
101. (original) The orthopedic implant of claim 82, wherein said implant is formed of a porous material and a material that intrinsically participates in the growth of bone from adjacent bone to adjacent bone through said implant.
102. (original) The orthopedic implant of claim 82, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent bones and bone portions.
103. (original) The orthopedic implant of claim 82, wherein said orthopedic implant is a fusion implant.
104. (original) The orthopedic implant of claim 103, wherein said exterior surface includes at least one opening to permit bone growth from adjacent bone to adjacent bone through said implant.
105. (original) The orthopedic implant of claim 103, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.

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106. (original) The orthopedic implant of claim 105, wherein said exterior surface includes at least one opening in communication with said internal chamber to permit bone growth from adjacent bone to adjacent bone through said implant.
107. (original) The orthopedic implant of claim 105, wherein said internal chamber is capable of containing bone growth promoting material.
108. (original) The orthopedic implant of claim 107, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
109. (original) The orthopedic implant of claim 82, further comprising at least one opening capable of retaining fusion promoting materials.
110. (original) The orthopedic implant of claim 82, wherein the bases of said first and second surface projections are adjacent to one another.
- Claim 111 (cancelled).
112. (currently amended) The orthopedic implant of claim 82444, wherein said opposed side facets converge to form a peak at the top of each of said surface projections.
113. (original) The orthopedic implant of claim 112, wherein said peaks are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the mid-longitudinal axis of said implant.
114. (currently amended) The orthopedic implant of claim 82444, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.
115. (currently amended) The orthopedic implant of claim 82444, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.
116. (original) The orthopedic implant of claim 115, wherein at least one of said grooves is parallel to the mid-longitudinal axis of said implant.
117. (original) The orthopedic implant of claim 115, wherein at least two of said grooves cross each other.

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118. (original) The orthopedic implant of claim 115, wherein at least one of said grooves has a horizontal cross-sectional shape that is one of a v-shape, u-shape, and a box-like shape.
119. (currently amended) An orthopedic implant for contact with bone, including adjacent bones and bone portions, of a human skeleton, said implant comprising:
- a leading end for introduction of said orthopedic implant into the bone, an opposite trailing end, spaced apart sides therebetween, and a mid-longitudinal axis passing through said leading and trailing ends;
 - an exterior surface between said leading and trailing ends and said spaced apart sides, said exterior surface adapted for placement in engagement with the bone; and
 - a plurality of surface projections formed on said exterior surface of said implant, each of said surface projections having a forward facet directed at least in part toward said leading end and a rearward facet directed at least in part toward said trailing end, said rearward facet including a plurality of facets, each of said facets having a perimeter defining each facet, at least a first and a second of said surface projections each having at least one facet with the perimeter having at least a first and a second portion arranged to form an apex having an included angle greater than 90 degrees between said first and second portions.
120. (original) The orthopedic implant of claim 119, wherein one of said facets is formed in the shape of a triangle having a vertex with an included angle greater than 90 degrees.
121. (original) The orthopedic implant of claim 119, wherein each of said forward facet and said rearward facet of said first and second projections have a length and a slope, the length of said forward facet being longer than the length of said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet.
122. (original) The orthopedic implant of claim 119, wherein said rearward facet is at an angle to said exterior surface of said implant.

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123. (original) The orthopedic implant of claim 122, wherein the angle is greater than 90 degrees.
124. (original) The orthopedic implant of claim 119, wherein said surface projections are oriented relative to one another to form an array.
125. (original) The orthopedic implant of claim 119, wherein said surface projections are geometrically disposed relative to one another.
126. (original) The orthopedic implant of claim 119, wherein said exterior surface of said implant is at least in part arcuate.
127. (original) The orthopedic implant of claim 119, wherein at least one of said leading end, trailing end, and sides are curved.
128. (original) The orthopedic implant of claim 119, wherein said sides are curved.
129. (original) The orthopedic implant of claim 119, wherein each of said leading end, trailing end, and sides are curved.
130. (original) The orthopedic implant of claim 129, wherein said leading end, trailing end, and sides form a circle.
131. (original) The orthopedic implant of claim 119, wherein said exterior surface of said implant is at least in part planar.
132. (original) The orthopedic implant of claim 119, wherein said implant is tapered along at least a portion of the length of said implant.
133. (original) The orthopedic implant of claim 119, wherein said implant comprises a material other than bone.
134. (original) The orthopedic implant of claim 119, wherein said implant comprises bone.
135. (original) The orthopedic implant of claim 134, wherein said bone includes cortical bone.
136. (original) The orthopedic implant of claim 119, wherein said implant comprises bone growth promoting material.
137. (original) The orthopedic implant of claim 136, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

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138. (original) The orthopedic implant of claim 119, wherein said implant is treated with a bone growth promoting substance.
139. (original) The orthopedic implant of claim 119, wherein said implant is a source of osteogenesis.
140. (original) The orthopedic implant of claim 119, wherein said implant is at least in part bioabsorbable.
141. (original) The orthopedic implant of claim 119, wherein said implant comprises metal.
142. (original) The orthopedic implant of claim 141, wherein said metal is ASTM material suitable for use as an orthopedic fusion implant.
143. (original) The orthopedic implant of claim 141, wherein said metal includes titanium.
144. (original) The orthopedic implant of claim 119, wherein said implant comprises a plastic material.
145. (original) The orthopedic implant of claim 119, wherein said implant comprises a ceramic material.
146. (original) The orthopedic implant of claim 119, wherein said implant is formed of a porous material.
147. (original) The orthopedic implant of claim 119, wherein said implant is formed of a material that intrinsically participates in the growth of bone from adjacent bone to adjacent bone through said implant.
148. (original) The orthopedic implant of claim 119, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent bone and bone portions.
149. (original) The orthopedic implant of claim 119, wherein said orthopedic implant is a fusion implant.
150. (original) The orthopedic implant of claim 149, wherein said exterior surface includes at least one opening to permit bone growth from adjacent bone to adjacent bone through said implant.

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151. (original) The orthopedic implant of claim 149, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.
152. (original) The orthopedic implant of claim 151, wherein said implant has a cap for closing said access opening.
153. (original) The orthopedic implant of claim 151, wherein said exterior surface includes at least one opening in communication with said internal chamber to permit bone growth from adjacent bone to adjacent bone through said implant.
154. (original) The orthopedic implant of claim 151, wherein said internal chamber is capable of containing bone growth promoting material.
155. (original) The orthopedic implant of claim 154, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
156. (original) The orthopedic implant of claim 119, further comprising at least one opening capable of retaining fusion promoting materials.
157. (original) The orthopedic implant of claim 119, in combination with a fusion promoting substance.
158. (original) The orthopedic implant of claim 157, wherein said fusion promoting substance includes at least one of bone, bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
159. (original) The orthopedic implant of claim 119, wherein each of said first and second surface projections have a base, the bases being adjacent to one another.
160. (original) The orthopedic implant of claim 119, wherein each of said first and second surface projections have a base, the bases being spaced apart from one another along a direction generally parallel to the mid-longitudinal axis of said implant.
161. (original) The orthopedic implant of claim 119, wherein each of said first and second surface projections have a base, the bases being spaced apart from one another along a direction generally transverse to the mid-longitudinal axis of said implant.

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162. (original) The orthopedic implant of claim 119, wherein said forward facets of each of said first and second surface projections face the same direction.
163. (original) The orthopedic implant of claim 119, wherein said first and second surface projections each have opposed side facets directed generally toward said spaced apart sides of said implant, respectively, said side facets being located between said forward facet and said rearward facet of each of said first and second surface projections, said side facets converging toward each other in a direction away from said exterior surface of said implant.
164. (original) The orthopedic implant of claim 163, wherein said opposed side facets intersect each other.
165. (original) The orthopedic implant of claim 164, wherein said opposed side facets converge to form a peak at the top of said surface projection.
166. (original) The orthopedic implant of claim 165, wherein said peaks of at least two of said surface projections are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the mid-longitudinal axis of said implant.
167. (original) The orthopedic implant of claim 165, wherein said peak of said first surface projection overlies at least a portion of said second surface projection.
168. (original) The orthopedic implant of claim 165, wherein said peaks of said first and second surface projections are at the same height above said exterior surface of said implant.
169. (original) The orthopedic implant of claim 163, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.
170. (original) The orthopedic implant of claim 163, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.
171. (original) The orthopedic implant of claim 170, wherein at least one of said grooves is parallel to the mid-longitudinal axis of said implant.
172. (original) The orthopedic implant of claim 170, wherein at least two of said grooves cross each other.

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173. (original) The orthopedic implant of claim 170, wherein at least one of said grooves has a horizontal cross-sectional shape that is one of a v-shape, u-shape, and a box-like shape.
174. (original) The orthopedic implant of claim 163, wherein each of said first and second surface projections have a base and said side facets have a maximum width therebetween at the base, the base being spaced apart from a base of another of said surface projections by a distance no greater than one-half the maximum width of one of said first and second surface projections.
175. (currently amended) An interbody orthopedic implant for contact with bone, including adjacent bones and bone portions, of a human skeleton, said implant comprising:
- a leading end for introduction of said orthopedic implant into the bone, an opposite trailing end, spaced apart sides therebetween, and a mid-longitudinal axis passing through said leading and trailing ends;
 - an exterior surface between said leading and trailing ends and said spaced apart sides, said exterior surface adapted for placement in engagement with the bone; and
 - a plurality of surface projections formed on said exterior surface of said implant, at least a first and a second of said surface projections each having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than the length of said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said first and second surface projections each forming a base having a perimeter and a portion above the base, said portion above the base of said first and second surface projections extending outside of the perimeter of the base of a respective one of said first and second surface projections, said first and second surface projections each having opposed side facets directed generally toward said spaced apart sides of said implant, respectively, said side facets

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being located between said forward facet and said rearward facet of each of said first and second surface projections, said side facets converging toward each other in a direction away from said exterior surface of said implant.

- 176. (original) The orthopedic implant of claim 175, wherein said rearward facet is at an angle to said exterior surface of said implant.
- 177. (original) The orthopedic implant of claim 176, wherein the angle is greater than 90 degrees.
- 178. (original) The orthopedic implant of claim 175, wherein said surface projections are oriented relative to one another to form an array.
- 179. (original) The orthopedic implant of claim 175, wherein said surface projections are geometrically disposed relative to one another.
- 180. (original) The orthopedic implant of claim 175, wherein said exterior surface of said implant is at least in part arcuate.
- 181. (original) The orthopedic implant of claim 175, wherein at least one of said leading end, trailing end, and sides are curved.
- 182. (original) The orthopedic implant of claim 175, wherein said sides are curved.
- 183. (original) The orthopedic implant of claim 175, wherein each of said leading end, trailing end, and sides are curved.
- 184. (original) The orthopedic implant of claim 183, wherein said leading end, trailing end, and sides form a circle.
- 185. (original) The orthopedic implant of claim 175, wherein said exterior surface of said implant is at least in part planar.
- 186. (original) The orthopedic implant of claim 175, wherein said implant is tapered along at least a portion of the length of said implant.
- 187. (original) The orthopedic implant of claim 175, wherein said implant comprises a material other than bone.
- 188. (original) The orthopedic implant of claim 175, wherein said implant comprises bone.
- 189. (original) The orthopedic implant of claim 188, wherein said bone includes cortical bone.

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190. (original) The orthopedic implant of claim 175, wherein said implant comprises bone growth promoting material.
191. (original) The orthopedic implant of claim 190, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
192. (original) The orthopedic implant of claim 175, wherein said implant is treated with a bone growth promoting substance.
193. (original) The orthopedic implant of claim 175, wherein said implant is a source of osteogenesis.
194. (original) The orthopedic implant of claim 175, wherein said implant is at least in part bioabsorbable.
195. (original) The orthopedic implant of claim 175, wherein said implant comprises metal.
196. (original) The orthopedic implant of claim 195, wherein said metal is ASTM material suitable for use as a fusion implant.
197. (original) The orthopedic implant of claim 195, wherein said metal includes titanium.
198. (original) The orthopedic implant of claim 175, wherein said implant comprises a plastic material.
199. (original) The orthopedic implant of claim 175, wherein said implant comprises a ceramic material.
200. (original) The orthopedic implant of claim 175, wherein said implant is formed of a porous material.
201. (original) The orthopedic implant of claim 175, wherein said implant is formed of a material that intrinsically participates in the growth of bone from adjacent bone to adjacent bone through said implant.
202. (original) The orthopedic implant of claim 175, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent bones and bone portions.

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- 203. (original) The orthopedic implant of claim 175, wherein said orthopedic implant is a fusion implant.
- 204. (original) The orthopedic implant of claim 203, wherein said exterior surface includes at least one opening to permit bone growth from adjacent bone to adjacent bone through said implant.
- 205. (original) The orthopedic implant of claim 203, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.
- 206. (original) The orthopedic implant of claim 205, wherein said implant has a cap for closing said access opening.
- 207. (original) The orthopedic implant of claim 205, wherein said exterior surface includes at least one opening in communication with said internal chamber to permit bone growth from adjacent bone to adjacent bone through said implant.
- 208. (original) The orthopedic implant of claim 205, wherein said internal chamber is capable of containing bone growth promoting material.
- 209. (original) The orthopedic implant of claim 208, wherein said bone growth promoting material is one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
- 210. (original) The orthopedic implant of claim 175, further comprising at least one opening capable of retaining fusion promoting materials.
- 211. (original) The orthopedic implant of claim 175, in combination with a fusion promoting substance.
- 212. (original) The orthopedic implant of claim 211, wherein said fusion promoting substance includes at least one of bone, bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
- 213. (original) The orthopedic implant of claim 175, wherein the bases of said first and second surface projections are adjacent to one another.
- 214. (original) The orthopedic implant of claim 175, wherein the bases of said first and second surface projections are spaced apart from one another along a direction generally parallel to the mid-longitudinal axis of said implant.

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215. (original) The orthopedic implant of claim 175, wherein the bases of said first and second surface projections are spaced apart from one another along a direction generally transverse to the mid-longitudinal axis of said implant.
216. (original) The orthopedic implant of claim 175, wherein said forward facets of each of said first and second surface projections face the same direction.
- Claim 217 (cancelled).
218. (currently amended) The orthopedic implant of claim 175217, wherein said opposed side facets intersect each other.
219. (original) The orthopedic implant of claim 218, wherein said opposed side facets converge to form a peak at the top of said surface projection.
220. (original) The orthopedic implant of claim 219, wherein said peaks of at least two of said surface projections are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the mid-longitudinal axis of said implant.
221. (original) The orthopedic implant of claim 219, wherein said peak of said first surface projection overlies at least a portion of said second surface projection.
222. (original) The orthopedic implant of claim 219, wherein said peaks of said first and second surface projections are at the same height above one of said exterior surface of said implant.
223. (currently amended) The orthopedic implant of claim 175217, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.
224. (currently amended) The orthopedic implant of claim 175217, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.
225. (original) The orthopedic implant of claim 224, wherein at least one of said grooves is parallel to the mid-longitudinal axis of said implant.
226. (original) The orthopedic implant of claim 224, wherein at least two of said grooves cross each other.

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227. (original) The orthopedic implant of claim 224, wherein at least one of said grooves has a horizontal cross-sectional shape that is one of a v-shape, u-shape, and a box-like shape.
228. (currently amended) The orthopedic implant of claim 175247, wherein said side facets have a maximum width therebetween at the bases of said first and second surface projections, the bases being spaced apart from one another by a distance no greater than one-half the maximum width of one of said first and second surface projections.